Regulatory Framework—TVA Kingston Ash Recovery Effort

C. Zeller, L. Francendese - United States Environmental Protection Agency, Region 4 Superfund Division, Atlanta, GA

ABSTRACT

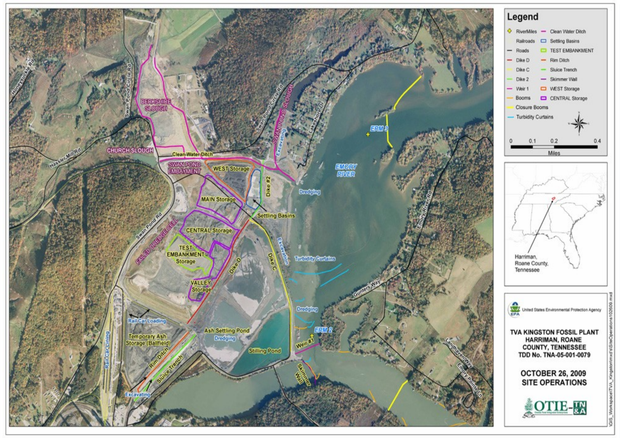
On May 11, 2009, the Tennessee Valley Authority (TVA) entered into an Administrative Order on Consent (AOC) with the Region 4 Office of the United States Environmental Protection Agency (EPA), under the regulatory authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), to address the approximate 5.4 million cubic yards (CY) of coal ash released to the environment on December 22, 2008. The Superfund program was selected as the preferred regulatory framework due to its comprehensive human health and ecological risk assessment process and its proven ability to actively engage and involve multiple stakeholders in large, complex environmental cleanup projects. A series of phased Time Critical and Non-Time Critical Superfund Removal Actions are underway to address coal ash that was released to area waters, including the Emory River, tributaries, embayments, and sloughs. Time Critical Removal Actions involve wet excavation, mechanical and hydraulic dredging, rapid materials handling and disposal of an estimated 3 million cubic yards of ash from the Emory River to mitigate further downstream transport. Ash removed from the river is dewatered on-site and loaded onto rail cars for disposal at an approved landfill in Perry County, Alabama. Under the direction of the Superfund Removal Program, river removal production has increased from an average of 2500 CY/day to nearly 15,000 CY/day with the potential of 20,000 CY/day. River removal is expected to be complete by May of 2010. Non-Time Critical Removal Actions will be utilized to address the 2.5 million CY of ash in the embayments and sloughs, and to assess the environmental risks posed to human health and ecological receptors by residual ash in the river system. This poster will provide an overview of the regulatory framework, and short- and long-term removal actions employed by EPA to protect human health and the environment.

INTRODUCTION

On Monday, December 22, 2008, a coal fly ash spill occurred at TVA's Kingston Fossil Plant, allowing a large amount of fly ash to escape into the Emory River. On January 12, 2009, the Tennessee Department of Environment and Conservation (TDEC) issued a Commissioner's Order requiring action be taken to respond to the emergency under Tennessee Code Annotated §69-3-109(b)(1), the Water Quality Control Act. On May 11, 2009, an Administrative Order and Agreement on Consent was signed between the U.S. Environmental Protection Agency (EPA) and TVA providing the regulatory framework for the restoration. The restoration work is being conducted under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and more specifically, under the removal program.

RESPONSE ACTIONS

- Time-Critical Removal Actions - response actions necessary to achieve short-term strategic Site objectives
- Non-Time-Critical Removal Actions - Activities necessary to achieve mid-term strategic Site objectives
- Remedial Actions - Activities necessary to achieve longer-term strategic Site objectives
- The specific actions to be taken to achieve these goals, and the schedules for those actions, are governed by approved work plans
- To the extent appropriate, time-critical response actions furthering the short-term Site objectives and non-time-critical response actions furthering the mid-term Site objectives are carried out simultaneously.



TIME-CRITICAL REMOVAL ACTIONS

The short-term strategic objectives for the Site are to:

- prevent the coal ash release from negatively impacting public health and the environment;
- contain and remove coal ash from the Emory River and the area east of Dike 2 as appropriate to restore flow and minimize further downstream migration of the ash material; and
- ensure that coal ash material recovered during these efforts is properly managed pending ultimate disposal decisions or, to the extent required by limited storage capacity, properly disposed.

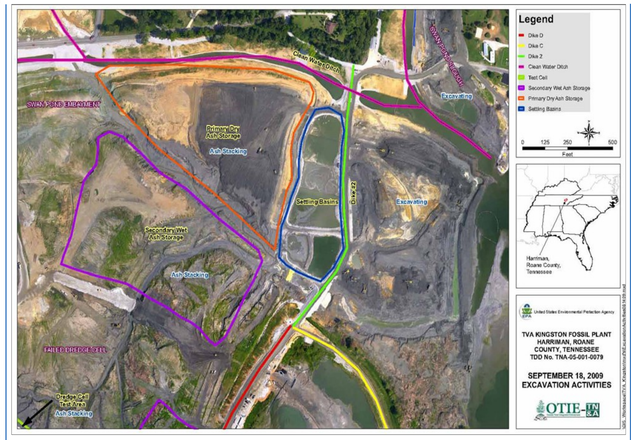
Time Critical Removal Actions to achieve the short-term strategic objectives involve the removal of ash from the river system through:

- Wet excavation
- Mechanical and hydraulic dredging
- Rapid materials handling and disposal of an estimated 3 million cubic yards of ash

Ash removed from the river is dewatered on-site and loaded onto rail cars for disposal at an approved landfill in Perry County, Alabama. Under the direction of the Superfund Removal Program, river removal production has increased from an average of 2500 cy/day to nearly 15,000 cy/day with the potential of 20,000 cy/day. River removal is expected to be complete by May of 2010.


Removing ash from sluice ditch.


Aerial view of ballfield loading area.



NON-TIME CRITICAL REMOVAL ACTIONS

The mid-term strategic objectives for the Site are to:

- remove any remaining coal ash from the Emory River and the area east of Dike 2, as well as the coal ash from embayments and tributaries west of Dike 2, to the maximum extent practicable, as determined by EPA in consultation with TDEC and TVA, pending further Site assessment;
- remove the coal ash from impacted surface soils to the maximum extent practicable, as determined by EPA in consultation with TDEC and TVA, pending further Site assessment;
- restore area waters impacted by the coal ash release in accordance with the required jurisdictional assessment; and
- ensure proper disposal of all coal ash material recovered during these efforts.

Non-Time Critical Removal Actions will be utilized to:

- Address the 2.5 million cubic yards of ash in the embayments and sloughs west of dike #2
- Long term ecological studies of aquatic systems to assess the environmental risks posed by residual ash in the river system.

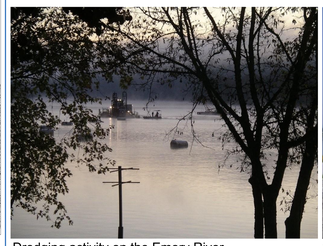

Dredging lines pumping into Rim Ditch.


Clean water diversion ditch from Berkshire Slough.

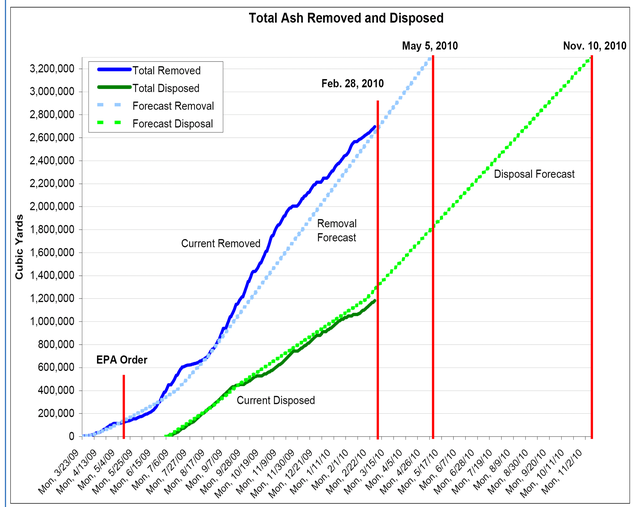
REMEDIAL ACTIONS

The longer-term objectives for the Site are to:

- perform a comprehensive Site assessment to determine what actions may be necessary to address any residual contamination remaining after previous cleanup activities;
- implement any such actions; and
- ensure the proper disposal of all ash material recovered during these efforts.


Dredging activity on the Emory River.


View of Emory River from Dike C.




Hydraulic dredge at staging area on Emory River.


Manual dredging on the Emory River.

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